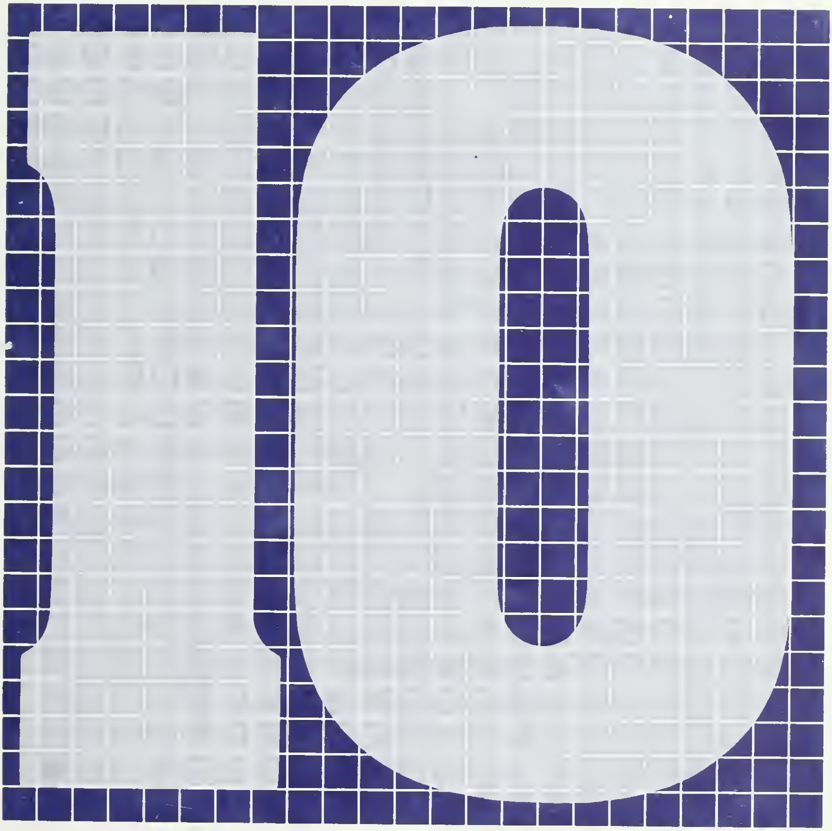
Blueprint for Waste Management in Ontario

Appendix 10

Solid Waste Management Cost Accounting Summary Report



Ontario

Ministry
of the
Environment

Hon. Keith C. Norton, Q.C.,
Minister

Gérard J. M. Raymond
Deputy Minister

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This is one of 11 appendices to the Blueprint for Waste Management. A complete list is presented on the inside of the back cover.

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APPENDIX 10
SOLID WASTE MANAGEMENT COST ACCOUNTING SUMMARY REPORT

The Blueprint for Waste Management stresses the importance of economic efficiency in all waste management ventures and programs. The Waste Management Advisory Board had recognized the need for information and advice to municipalities on the cost effectiveness of a solid waste management program and commissioned a study. This appendix, prepared by the management consulting firm, Currie, Coopers & Lybrand, summarizes the results of that study and puts costs and results into perspective through a cost-accounting approach. The more extensive multiphase report recommends that solid waste management cost accounting, monitoring and reporting require the participation of both the municipality and the province.

It should be noted that this report was completed in 1980 using 1977 cost figures. Although the figures may be out-dated, the cost-accounting approach suggested is a 'system' which is still valid and should be useful to municipalities.

This paper contains recycled fibre.

SOLID WASTE MANAGEMENT COST ACCOUNTING

SUMMARY REPORT

Prepared for the
Ministry of the Environment
by
Currie, Coopers & Lybrand Ltd.

August, 1980

I. INTRODUCTION

Municipal expenditures for refuse collection and disposal currently exceed $100 million annually in the Province. The Waste Management Advisory Board, which was established to advise the Minister of the Environment on government waste management policies and programs, has noted that municipalities in the Province urgently need sound information and advice on the cost-effectiveness of local solid waste management programs.

To help meet that need, the Board undertook a multi-phase study, part of which included the development of a solid waste management cost accounting, monitoring and reporting system and the preparation of a Municipal Solid Waste Management Cost Control Manual. The management information provided by these can be used to address questions such as the following:

- What are the cost differentials between collecting residential waste once per week and twice per week?
- What are the cost differentials between three and two-man collection crews, and between two and one-man collection crews?
- Are savings significant enough to justify promoting a reduction of crew sizes for certain types of communities?
- Which types of collection vehicles are most cost effective? Is it better, for example, to use 30 cubic yard, heavy duty packers than 20 or 25 cubic yard, medium density packers?
- For what size of community does municipally-provided service prove more cost effective than contracted services?
- To what extent do route density and haul distance make one alternative more attractive than another?
- Under what operating conditions do transfer stations and incinerators prove cost effective and how cost effective are they?

This summary report is intended to familiarize elected and appointed officials with the new system which has been developed and to briefly summarize the results of a pilot implementation of the new procedures which was undertaken in 1979 in nine Ontario municipalities. Further information on all aspects of the program can be obtained from the Waste Management Branch of the Ministry of the Environment.

II. ESTIMATES SUGGEST THAT SAVINGS APPROACHING TEN MILLION DOLLARS ANNUALLY CAN BE ACHIEVED

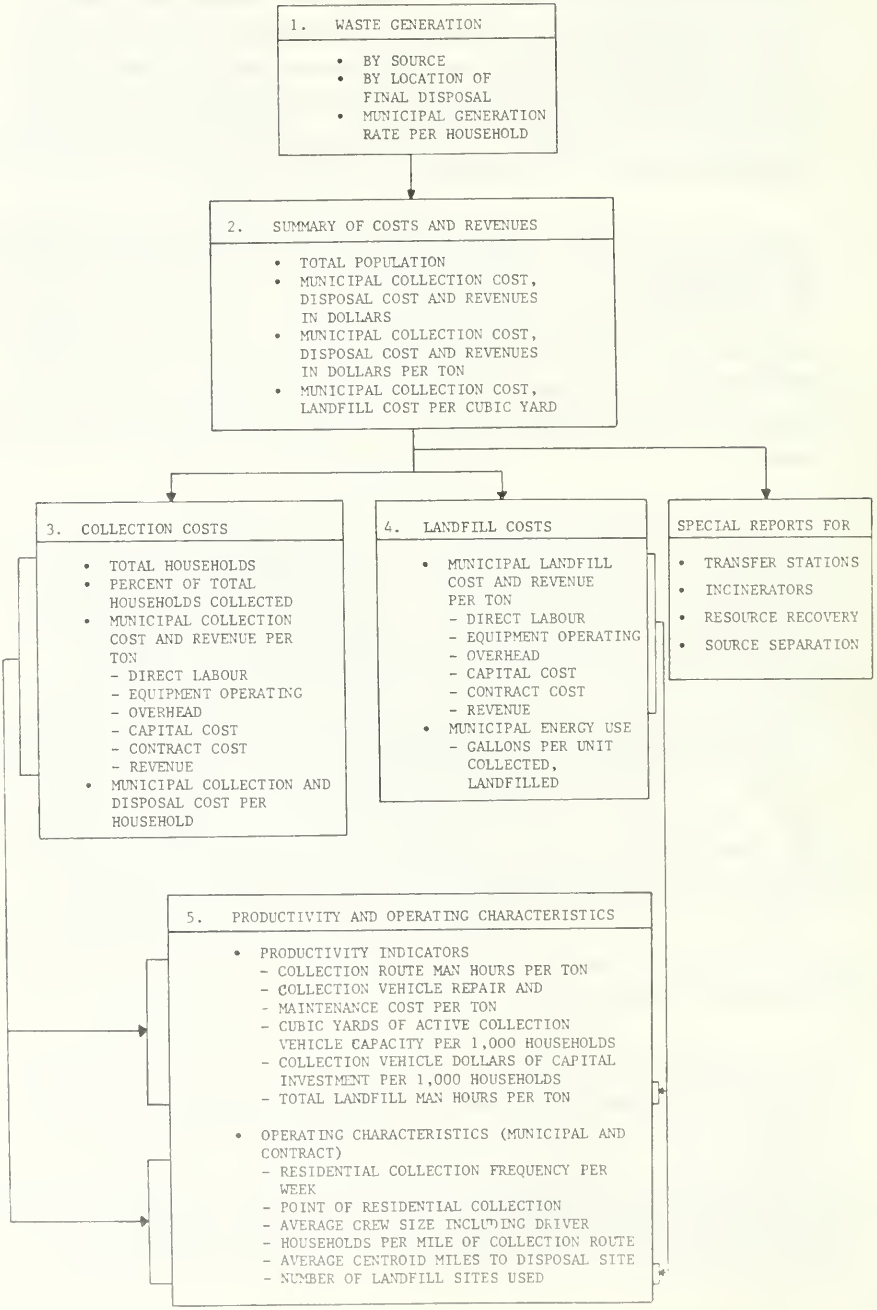
Municipal refuse collection and disposal costs in the province for 1977 (the last year of data analyzed in the pilot program) totalled $109 million based on a summary derived from the municipal data base of the Ministry of Treasury and Economics. Between 1974 and 1977, solid waste management costs grew at an average annual rate of 12%.

An analysis of general cost statistics from municipalities with populations of over 10,000 suggests that substantial cost savings may be achievable over a period of time. Estimates indicate that municipal collection costs could be reduced by $3.6 million per annum if municipalities with above average collection costs could gradually reduce their costs to the average level by implementing some of the efficiencies achieved by the lower cost communities. Similar estimates of potential savings for landfill operations total $2.9 million per year. In addition, if sufficient waste disposal charges were made to all private users to fully cover the municipal disposal cost per ton actually incurred, an increase of $3.2 million in revenue could be achieved. In total, therefore, potential province-wide savings in net solid waste management costs of approximately $10 million or 10% per annum could be approached.

The likelihood of achieving the cost reductions just noted would be enhanced if the cost accounting and performance measurement system reviewed in this report were implemented and fully utilized by municipalities. Such systems of cost measurement and control provide an information base which enables municipal managers and policy makers to fully understand the cost components of the solid waste management

EXHIBIT I

PROVINCIAL MONITORING REPORT COMPONENTS



1. WASTE GENERATION
- BY SOURCE
- BY LOCATION OF FINAL DISPOSAL
- MUNICIPAL GENERATION RATE PER HOUSEHOLD

2. SUMMARY OF COSTS AND REVENUES
- TOTAL POPULATION
- MUNICIPAL COLLECTION COST, DISPOSAL COST AND REVENUES IN DOLLARS
- MUNICIPAL COLLECTION COST, DISPOSAL COST AND REVENUES IN DOLLARS PER TON
- MUNICIPAL COLLECTION COST, LANDFILL COST PER CUBIC YARD

3. COLLECTION COSTS
- TOTAL HOUSEHOLDS
- PERCENT OF TOTAL HOUSEHOLDS COLLECTED
- MUNICIPAL COLLECTION COST AND REVENUE PER TON
  - DIRECT LABOUR
  - EQUIPMENT OPERATING
  - OVERHEAD
  - CAPITAL COST
  - CONTRACT COST
  - REVENUE
- MUNICIPAL COLLECTION AND DISPOSAL COST PER HOUSEHOLD

4. LANDFILL COSTS
- MUNICIPAL LANDFILL COST AND REVENUE PER TON
  - DIRECT LABOUR
  - EQUIPMENT OPERATING
  - OVERHEAD
  - CAPITAL COST
  - CONTRACT COST
  - REVENUE
- MUNICIPAL ENERGY USE
  - GALLONS PER UNIT COLLECTED, LANDFILLED

SPECIAL REPORTS FOR
- TRANSFER STATIONS
- INCINERATORS
- RESOURCE RECOVERY
- SOURCE SEPARATION

5. PRODUCTIVITY AND OPERATING CHARACTERISTICS
- PRODUCTIVITY INDICATORS
  - COLLECTION ROUTE MAN HOURS PER TON
  - COLLECTION VEHICLE REPAIR AND
  - MAINTENANCE COST PER TON
  - CUBIC YARDS OF ACTIVE COLLECTION VEHICLE CAPACITY PER 1,000 HOUSEHOLDS
  - COLLECTION VEHICLE DOLLARS OF CAPITAL INVESTMENT PER 1,000 HOUSEHOLDS
  - TOTAL LANDFILL MAN HOURS PER TON
- OPERATING CHARACTERISTICS (MUNICIPAL AND CONTRACT)
  - RESIDENTIAL COLLECTION FREQUENCY PER WEEK
  - POINT OF RESIDENTIAL COLLECTION
  - AVERAGE CREW SIZE INCLUDING DRIVER
  - HOUSEHOLDS PER MILE OF COLLECTION ROUTE
  - AVERAGE CENTROID MILES TO DISPOSAL SITE
  - NUMBER OF LANDFILL SITES USED

function. This understanding is required in order to properly assess new techniques for waste management, to properly assess service levels and cost-benefit relationships, and to develop appropriate policies to control solid waste management expenditures.

As we move into the decade of the eighties, new cost reduction initiatives will be required given environmental concerns which are placing upward pressure on solid waste management costs coupled with the continuing need to restrain public sector spending. Accurate and comparable cost and performance information is necessary if these initiatives are to be properly defined and assessed.

III. THE SOLID WASTE MANAGEMENT COST ACCOUNTING, MONITORING AND REPORTING SYSTEM REQUIRES PARTICIPATION BY BOTH MUNICIPALITIES AND THE PROVINCE

The solid waste management cost accounting, monitoring and reporting system which has been developed is designed to provide statistical reports for use by municipal and provincial authorities. These reports would be produced annually by the Province, based on information provided by municipal participants.

Exhibit I illustrates the five basic outputs which would be available for use by the majority of municipalities, including reports on

1. waste generation,
2. total costs and revenues,
3. collection costs,
4. landfill costs, and
5. productivity and operating characteristics.

The first section of the "general" report measures waste generation by source and final disposal point to indicate the scale of waste collection and disposal in the community. The second section reports total municipal collection and disposal costs and shows unit costs of collection and disposal. The third section focuses on cost components of collection service to identify significant inter-municipal variations. The fourth section performs the same function for landfill costs. The fifth section reports major operating factors which cause variations in cost with particular emphasis placed on the collection activity. The reports would contain this information for all participating municipalities in the Province to facilitate inter-municipal comparison.

The Exhibit also indicates the special reports which would be prepared for larger-scale solid waste disposal systems utilizing transfer operations and various processing facilities such as incinerators or resource recovery plants in addition to landfill sites.

Municipal reporting under the recommended system would be carried out by circulating a municipal input form or questionnaire to be completed by each municipality's engineering and accounting functions. The form collects physical and financial information in the following categories:

1. Physical and Operating Information
    a. Description of the municipality.
    b. Description of collection service provided.
    c. Description of collection practices followed and resources used.
    d. Description of disposal facilities used within and outside the municipality.
    e. Description of each landfill site operated by the municipality.

2. Financial Information
    a. Collection costs and revenues (including capital costs and administrative costs).
    b. Landfill costs and revenues (including capital costs and administrative costs).

Samples of the types of forms necessary for reporting the refuse collection activity portion of the above are included as an appendix to this report to illustrate the nature of the data which would be required from municipal participants.

It should be noted that this kind of information should form a part of any sound municipal management program. In order to assist municipalities to develop the requisite management information, a Municipal Solid Waste Management Cost Control Manual has been prepared outlining procedures to be used for converting the municipal fund accounting information used by municipalities to a management and investment accounting basis. The manual also provides municipal managers with a practical weekly approach to planning the deployment of resources, measuring performance against plan, identifying areas for improvement and measuring the effectiveness of corrective action. Most data reported in this system during the year would be accumulated at year-end for input to the provincial monitoring report.

In addition, procedures have been established for use by non-weighing municipalities to estimate annual tonnages collected and disposed of based on sample truck counts and the application of solid waste density factors developed for selected categories of collection vehicles. These procedures are fully described in reports available from the Waste Management Branch. Accurate tonnage estimates are necessary since the ability to develop and implement timely planning and control is dependent upon the ability to measure service output and productivity.

From the standardized base data developed by municipalities, procedures have been developed for provincial production of the output reports illustrated in Exhibit I. The contents and structuring of the reports have been designed for ease of analysis, but at this time custom programming has not taken place. Some limitations are evident, therefore. However, designs have been prepared for categorizing outputs by municipal operating characteristics when custom programming does occur. At that time the recommended categories of reporting would be

- by municipal size,
- by collection frequency,
- by operator (e.g. municipal vs. contractor),
- by crew size,
- by municipalities with and without actual weigh records.

The eventual inclusion of such categories in the provincial report will make the analysis of costs and performance easier for both municipal and provincial officials.

In summary, the cost accounting, monitoring and reporting system which has been developed requires the joint participation of the municipalities and the Province. Standardized procedures for data collection and tabulation have been developed. The information which is provided can significantly enhance policy analysis since comparative performance measures would be available to both municipal and provincial authorities.

IV. THE SYSTEM HAS BEEN SUCCESSFULLY TESTED THROUGH A PILOT IMPLEMENTATION IN NINE MUNICIPALITIES

The system described above was tested through a pilot program conducted with the co-operation of nine municipalities. The municipalities involved in the pilot implementation can be categorized as follows:

- a metropolitan municipality with over 1 million population,
- a metropolitan borough with a population of approximately 400,000 people,
- a southwestern city with 250,000 population,
- a northern city and the corresponding northern region with 100,000 population,
- a southeastern city with a population of approximately 125,000 people,
- a regional municipality of 400,000 population adjacent to the metropolitan area,
- a suburban city of approximately 275,000 population within the above mentioned region, and

- a small rural township with a permanent population under 10,000 people.

The results from the pilot program indicate that expanded implementation of the costing system is practical, feasible and desirable. Some of the most important results are summarized below.

A. THE MAJORITY OF MUNICIPALITIES COMPLETED THE INPUT DATA FORMS AND THE QUALITY OF DATA WAS REASONABLE

Eight of the nine municipalities completed the data forms in a reasonable time frame (between one and three months). In the case of the major metropolitan area, however, the majority of the data was prepared by the consultants using the basic information supplied by the municipality.

In terms of full-time effort involved to complete the input forms up to one man-week of effort was required in most municipalities depending on their size, and about two weeks of work were required for the major metropolitan area. The differences in time required depended on whether the data already available at municipalities related well to the required cost-accounting form; that is, whether such data were normally accummulated or summarized adequately for internal management and cost-control purposes. In general, such data were available for municipal operations, whereas if contractors were used the data were often not readily available at the required level of detail.

The quality and completeness of municipal data varied based on the nature and complexity of operations. In overall terms, the data were good. There were four specific areas, however, where extra attention was required to edit the data from certain municipalities. These included

- the allocation of administrative and engineering overheads,

- the estimation of annual capital depreciation and carrying costs for collection fleets,

- the estimation of annual capital cost allocations for landfill operations, and, as mentioned above,

- the detailed cost information for operations which were contracted out.

The first three areas can be anticipated to be improved through increased familarity with the standard costing procedures. Overcoming the problem of incomplete data for contracted services, however, will require municipalities to request these kinds of data in their contract terms.

B. THE COMPARATIVE MANAGEMENT COST INFORMATION WAS USEFUL FOR IDENTIFYING AREAS FOR MUNICIPAL IMPROVEMENTS IN OPERATING EFFICIENCY

As part of the pilot implementation, a brief analysis of the provincial reports produced for the nine sample municipalities was undertaken to determine the usefulness of the comparative performance data. The procedure involved identifying major cost anomolies and then examining those operating and performance characteristics which seemed to explain the cost differences. The intent is to identify areas of efficiency in one municipality that might be applicable in another. Two samples of the findings are reported below for illustrative purposes.

1. Cost of Municipal Collection Operations Were Compared

Of the nine sample municipalities, three were operating predominantly municipal collection services. One was the southwestern city, another was the northern city and the third was the metropolitan suburb. Key observations are as follows:

- All three municipalities were weighing the waste, therefore the tonnage figures are reasonably accurate.

- Total municipal collection costs per ton for the northern municipality ($37.78) and the large metropolitan suburb ($36.78) were 17% to 20% higher than for the large southwestern city ($31.54).

- The major reason for the higher costs was in both cases higher labour cost (+ 35% to 45%).

- The higher labour costs were due to two collections being performed weekly in the two higher cost municipalities rather than the once-weekly collection in the other municipality.

- It could not be proved that differences in municipal crew sizes caused cost differences, since the large metropolitan suburb averaged a lower crew size than the southwestern city, but had a higher cost per ton.

Based on the above summary analysis of municipal collection costs, the following actions may be appropriate:

- The large northern city and the metropolitan municipality should re-evaluate the current twice-weekly collection service levels in relation to citizen's priorities and fiscal requirements.

- Although higher crew sizes were not proved to be more costly, the northern city and southwestern city should consider reducing crew sizes based on individual feasibility studies at each municipality.

2. Landfill Costs Showed Wide Variations

There were four sample municipalities operating landfill sites. It was found that:

- Total cost per ton landfilled ranged from $2.91 per ton in the metropolitan area to $8.51 per ton in the large southwestern city. It should be noted that the metropolitan cost was only for landfill operations and excluded transfer station and incineration costs.

- Of the $8.51 landfill cost of the southwestern city, $2.24 was the estimated capital cost of a new site opened in 1975.

- Capital costs of landfill were $0.38 per ton in the small rural municipality and ranged up to $3.16 per ton in the regional municipality that had developed a new landfill site in 1978.

- If capital cost is excluded and operating costs for municipally operated sites are examined the following variations in cost per ton are evident:

	$ per ton
Large Southwestern City	6.27
Small Rural Township	6.88
Metropolitan Area	1.92
Large Regional Municipality	3.68

- Labour costs in the above showed wide differences as follows:

  - The small rural townships' labour cost per ton was $4.39 due to there being a "one-man fixed cost" operation and low tonnage.

  - Labour costs in the southwestern city ($2.53) were affected by further development of a new landfill site with municipal employees' participation. Litter patrol activity was also regarded as being heavy at the city's new site compared with the city's old site, since the new site was located in an adjoining township.

  - Labour costs in the other two municipalities were similar at approximately \$1.00 per ton landfilled.

- Equipment costs were also higher at the same two sites mentioned above.

  - The similar "fixed cost/small tonnage" appears to be a reason at the small rural township (\$1.55 per ton).

  - Additional equipment rentals for the capital work being done at the southwestern city's new site is one reason for higher cost (not quantified).

  - Equipment costs at the other two municipalities were similar (\$0.48 and \$0.59 per ton).

- Revenues from private users ranged from nothing to \$8.32 per ton. There were no revenues collected from private users in two municipalities and revenues then ranged up to \$8.32 per ton in the metropolitan area.

The summary analysis of landfill operations suggests the following:

- Capital costs per ton are significant in some cases, but vary between municipalities depending on location, size of site and date of acquisition. Thus capital costs will need to be extracted from total landfill costs to make more meaningful comparisons of other landfill costs.

- As landfill site acquisition and development costs escalate due to shortages of suitable sites and increasingly stringent environmental requirements, this cost element is likely to become more significant and will require continued monitoring by municipal and provincial authorities.

- Operating costs are significantly affected by the scale of landfill operation and the amount of site development work being performed.

- All municipalities should review their landfill disposal rates for private users to ensure that the rates charged equal the landfill cost per ton including an estimate for landfill site capital costs. Increases in rates to these more realistic levels could be phased in over a number of years.

From the foregoing brief review it is apparent that the comparative data can provide useful insights regarding cost and performance anomolies, thus indicating possible directions for improving operating efficiencies. Clearly, the comparative review illustrated here suffers from the small sample size and overview analysis. However, with wide scale implementation of the proposed reporting system, more meaningful cost and performance comparisons can be made and this should lead to cost reduction on an ongoing basis.

C. THE TONNAGE ESTIMATING PROCEDURES DEVELOPED FOR NON-WEIGHING MUNICIPALITIES ARE SATISFACTORY FOR INTERIM USE

The pilot program was also used to determine the suitability of the tonnage estimating procedures which have been developed for use by non-weighing municipalities using the truck counting program and province-wide density factors.

Of the nine municipalities in the study, three were non-weighing and therefore required estimation of total weights for cost reporting purposes. One of the three, the small rural township, did not estimate landfill tonnage prior to this study, while the other two already used truck counting procedures for billing purposes, and then estimated the tonnage landfilled using their own rough density estimates.

The practicality of applying the proposed truck counting procedures was tested by conducting the truck counting program with the co-operation of the small township. The process was readily understood by the municipal staff who undertook the work and instituted it efficiently. It is concluded, therefore, that wide scale implementation would be practical and feasible.

The province-wide density and annualization factors were tested by comparing estimated tonnages using the factors and truck counts with actual weigh records from two of the municipalities. The results showed variations of less than ten percent at both locations. It is concluded, therefore, that these factors are readily applicable for use by non-weighing municipalities on an interim basis until weigh scales are installed to provide more accurate information or until local density factors are developed.

A final test was undertaken to determine the reasonableness of municipal weight estimates already available at some non-weighing municipalities. It was noted above that of the three non-weighing municipalities involved, two already had truck counting procedures in place for billing purposes. Thus, rather than initiating the proposed truck counting procedures, a comparison of the rough municipal tonnage estimates already available was made to those derived using the density factors, seasonal density adjustment percentages and annualization factors. Although the test results were mixed, it will be reasonable to use rough municipal estimates of tonnage in the first year of wide scale system implementation.

In summary, it is concluded that the tonnage estimating procedures which have been developed are satisfactory for interim use.

The overall conclusion drawn from the pilot implementation of the cost accounting, monitoring and reporting system is that:

- municiaplities can provide the data required by the system,

- the data provided in the provincial monitoring reports will help policy-makers in their efforts to improve solid waste management operating efficiency and effectiveness, and

- the tonnage estimating procedures for non-weighing municipalities using truck counts and density and annualization factors is relatively simple and provides acceptable intermim annual tonnage data.

Wide scale implementation of the system is therefore judged to be both practical and feasible. The benefits of implementing the system in the major municipalities in Ontario are outlined briefly below.

V. BOTH MUNICIPAL AND PROVINCIAL SOLID WASTE MANAGEMENT AUTHORITIES WOULD BENEFIT FROM IMPLEMENTATION OF THE COST ACCOUNTING, REPORTING AND MONITORING SYSTEM

Many benefits will be derived if the cost accounting, reporting and monitoring system is implemented for use by the 148 Ontario municipalities with populations of 10,000 people and over. Some of the advantages for the municipalities are envisaged as follows:

- The comparative cost and operating performance data will help municipalities assess their performance in relation to their peers, e.g., collection cost per ton, man hours per ton landfilled, differential costs related to changes in service level, etc.

- Municipalities in similar categories can compare their detailed operating characteristics with others and seek improvements in performance.

- Dialogue between municipal engineering groups will be encouraged and this should generate a higher level of sharing of efficient solid waste management practices. For example, how did a certain municipality move from three-man to one-man packers, how was the change explained to the personnel involved and what were the cost savings?

- Weighing municipalities can use the standard density factors to compare with their own equipment and man hour performance.

- Non-weighing municipalities will have a basis for estimating tonnages and measuring collection and landfill site performance, e.g., cost per ton landfilled.

- By having each municipality carry out the process of compiling data and preparing the data forms, certain questions may be raised or statistics may be developed that raise questions on performance in the municipality even before comparisons with other municipalities are made.

- If municipalities adopt all or part of the procedures contained in the Municipal Solid Waste Management Cost Control Manual developed as part of this study, there should be benefits from planning and monitoring their operations on a week-to-week basis that should lead to better manpower and cost control.

As well as providing municipalities with useful comparative performance and cost data, provincial bodies will also derive benefits from the wide scale implementation of the costing system. Some of the anticipated benefits are outlined below:

- A data base will be available for solid waste collection and disposal performance, and service levels, for use in the preparation of feasibility studies for alternate waste processing proposals.

- The Waste Management Branch will be able to assist municipalities with suggestions on improving cost efficiency or suggest which other municipalities with more efficient operations can be of help.

- Data will be available in a standard form that can be issued to tenderers for new recycling plants so that they use comparable data for feasibility studies (e.g., in comparing recycling plant costs with transfer station or landfill costs per ton).

- By reviewing the provincial monitoring report, Branch staff may be able to see which cost/operating areas require priority attention by them to help municipalities reduce costs. Also, if major disparities in municipal collection costs are evident, training seminars on efficient collection practices could be initiated.

- When solid waste generation statistics are available for the whole Province, the physical and cost impact of changing legislation may be assessed on a year to year basis. A reduction in, say, bottles in the waste stream may be discernable in the tonnage trends and can be related to province-wide landfill site life.

The full implementation of the costing system should bring these benefits over a period of years as the quality and consistency of data improves. Based on these benefits and a potential for cost reduction in the Province of more than $10 million per annum, full scale implementation of the costing system is recommended in municiaplities of over 10,000 people. The Branch may consider implementation for the smaller municipalities at a later date using a short form of return if real benefits can be predicted.

VI. CONCLUDING COMMENTS

In the final analysis, even with provincial support and guidance, it will rest with individual municipalities to improve operating performance and cost control. Municipalities will no doubt strive for cost reduction opportunities that do not seriously affect service levels. The solid waste management cost accounting, monitoring and reporting system discussed in this report will aid in identifying opportunity areas which merit full investigation. However, achievement of improvements in performance depends upon municipal control of operations on a weekly basis using techniques and reports similar to those suggested in the Municipal Solid Waste Management Cost Control Manual.

Significant preliminary steps toward improving cost effectiveness can be obtained by province-wide implementation of the costing system which has been successfully tested as part of this study. An adequate comparative cost and performance information base is an essential ingredient in the search for increased cost efficiency. Attention should be focused on this first step so that new solid waste management initiatives can be pursued as we enter the decade of the eighties.

SAMPLE OF

INPUT COMPLETION INSTRUCTIONS

MUNICIPAL INPUT 19 , COLLECTION DATA, KEY INFORMATION

(COLLECTION DATA)

1. **Demographic Data**

Enumerated Fall Population	249,123
Number of Households:	
• Municipally Collected	64,026
• Contract Collected	4,126
• Not Served	0
Total # of Households	68,152

Population per the Annual Municipal Financial report/Enumeration Roll

Per the residential taxation records for solid waste collection

Per the contract agreement for Collection

Households not served municipally or by contract

Total number of households per enumeration records, also shown on municipal financial report

2. **Tonnage Data**

Number of Tons:		W	E
• Municipally Collected	90,350	☑	☐
• Contract Collected	6,270	☐	☑
Total # of Tons	102,620		

(w = weighed, e = estimated)

Tonnages extracted from the local landfill sites records

Estimate provided by contractor since in this example he does not use a site with scales

SAMPLE OF

INPUT COMPLETION INSTRUCTIONS
(COLLECTION DATA)

3. Cost and Financial Information

Municipal Costs	$000
• Direct Labor	1640·3
• Equipment Repe & Maint.	660·7
• Equipment other optg.	120·4
• Overhead Direct	241·6
• Overhead Allocated	164·0
• Capital Costs	191·8
•	-0-
Total Costs	2964·8
• Revenues	946·0
Net Cost	(A) 2018·8

Direct Labor and benefits costs for collection crews full time, part time, overtime and any other wage related allowances

Repair and maintenance labour costs, benefits, parts costs and outside repairs

Includes oil, fuel, licenses, insurance, etc. ie any non-maintenance vehicle costs of collection vehocles

Direct overhead such as foremens wages, travel, training costs, safety supplies, etc

10% of Direct Labor Costs

For municipally owned vehicles, including depreciation and interest charges (Further instructions in Cost Report)

Other costs not falling into above headings

Revenue for collection service not covered in by-laws

Contract Costs	$·00
• Contract Direct Charges	175·6
• Municipal Overhead Allocated	8·8
•	
Total Contract Costs	(B) 184·4

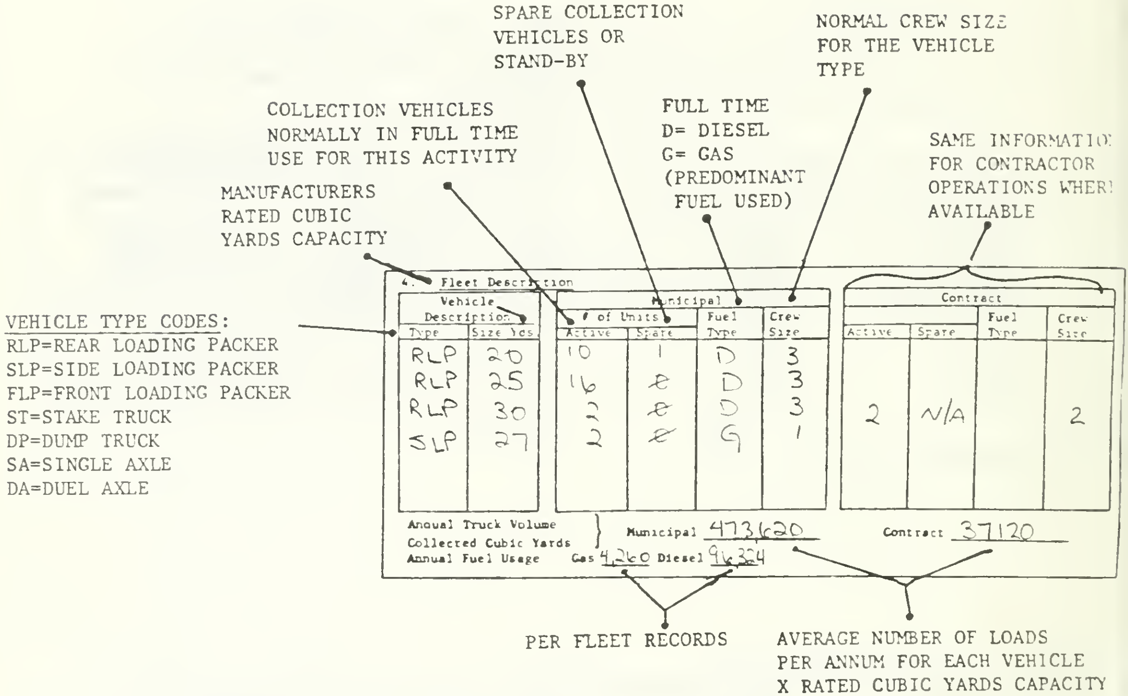
Total	
• Municipal Collection	(A) 2018·8
• Contract Collection	(B) 184·4
Total Net Cost of Collection	2203·2

Direct contractor charges for collection services per contract agreement

5% of contract charges

Any other contract related cost not included above

SAMPLE OF
INPUT COMPLETION INSTRUCTIONS
(COLLECTION DATA)



SPARE COLLECTION VEHICLES OR STAND-BY

NORMAL CREW SIZE FOR THE VEHICLE TYPE

COLLECTION VEHICLES NORMALLY IN FULL TIME USE FOR THIS ACTIVITY

FULL TIME
D= DIESEL
G= GAS
(PREDOMINANT FUEL USED)

SAME INFORMATION FOR CONTRACTOR OPERATIONS WHERE AVAILABLE

MANUFACTURERS RATED CUBIC YARDS CAPACITY

VEHICLE TYPE CODES:
RLP=REAR LOADING PACKER
SLP=SIDE LOADING PACKER
FLP=FRONT LOADING PACKER
ST=STAKE TRUCK
DP=DUMP TRUCK
SA=SINGLE AXLE
DA=DUEL AXLE

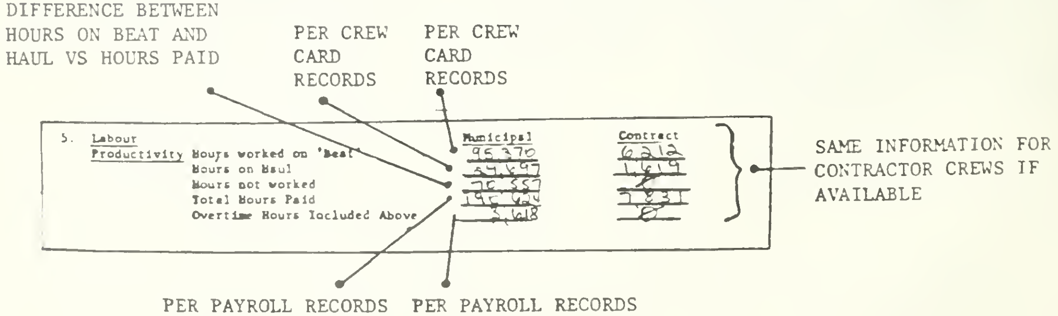
4. Fleet Description

Vehicle Description		Municipal				Contract			
		# of Units		Fuel	Crew			Fuel	Crew
Type	Size Yds	Active	Spare	Type	Size	Active	Spare	Type	Size
RLP	20	10	1	D	3				
RLP	25	16	0	D	3				
RLP	30	2	0	D	3	2	N/A		2
SLP	27	2	0	G	1				

Anoual Truck Volume Collected Cubic Yards } Municipal 473620 Contract 37120
Annual Fuel Usage Gas 4,260 Diesel 96,324

PER FLEET RECORDS

AVERAGE NUMBER OF LOADS PER ANNUM FOR EACH VEHICLE X RATED CUBIC YARDS CAPACITY



DIFFERENCE BETWEEN HOURS ON BEAT AND HAUL VS HOURS PAID

PER CREW CARD RECORDS

PER CREW CARD RECORDS

5. Labour Productivity

	Municipal	Contract
Hours worked on 'Beat'	95,370	6,212
Hours on Haul	54,697	1,619
Hours not worked	70,557	0
Total Hours Paid	195,624	7,831
Overtime Hours Included Above	3,618	0

SAME INFORMATION FOR CONTRACTOR CREWS IF AVAILABLE

PER PAYROLL RECORDS

PER PAYROLL RECORDS

SAMPLE OF
INPUT COMPLETION INSTRUCTIONS
(COLLECTION DATA)

PER MUNICIPAL COLLECTION ROUTE RECORDS

PREDOMINANT FREQUENCY OF COLLECTION FOR THE TYPE OF ROUTE

COLLECTION AT ONE "PASS" OF THE STREET OR TWO "PASSES"

SAME INFORMATION FOR CONTRACTOR FROM CONTRACT TERMS IF AVAILABLE

6. ROUTE DESCRIPTIONS

Type of Route	Municipal				Contract			
	# of Routes	Freq. of Coll'n	Point of Pickup	1 or 2 Side Col	# of Routes	Freq. of Coll'n	Point of Pickup	1 or 2 Side Col
Residential	22	1	Curb	2				
Apartment	5	2	Lane	2				
Commercial								
Res./Apt.	3	2	Lane	2	3	2	Lane	2
Res/Apt/Comm.	0	—	—	—				
Other ______	1	2	Mixed	2				
Total/ Predominant	31	1	Curb	2	3	2	Lane	2

PREDOMINANT POINT OF PICK-UP
C=CURB OR STREET LINE
FY=FRONT YARD
RY=REAR YARD
L/A=LANE OR ALLEY
B=BULK CONTAINER
O=OTHER, SPECIFY EG. MIXED
NOTING PREDOMINANT
OR NOT KNOWN
PRECISELY

THE HIGH, AVERAGE AND LOWEST NUMBER OF PICKUP POINTS ON THE ROUTE. IN THIS CASE ONLY RESIDENTIAL PICK-UP POINTS WERE KNOWN PRECISELY

THE HIGH, AVERAGE AND LOW NUMBER OF CALL ROUTE MILES

SAME INFORMATION FOR THE CONTRACTOR IF AVAILABLE

Numeric Data	Municipal			Contract		
	High	Average	Low	High	Average	Low
Number of Pick-up Points	4,212	3224	2896	2,672	2401	2209
Number of Households	Lane				N/A	
Call Route Miles	42	36	29	37	26	19
Haul Distance to Disposal	7	7	5	8	7	6
# of Loads per day	2.5	2.0	1.5	3.5	3.0	2.8

INFORMATION INDICATING A DIFFERENT NUMBER OF HOUSEHOLDS TO PICK UP POINTS MAY OR MAY NOT BE AVAILABLE

AVERAGE NUMBER OF LOADS PER DAY FROM THE CREW RECORDS

THE HIGH, AVERAGE AND LOW HAUL DISTANCES TO LANDFILL DISPOSALS

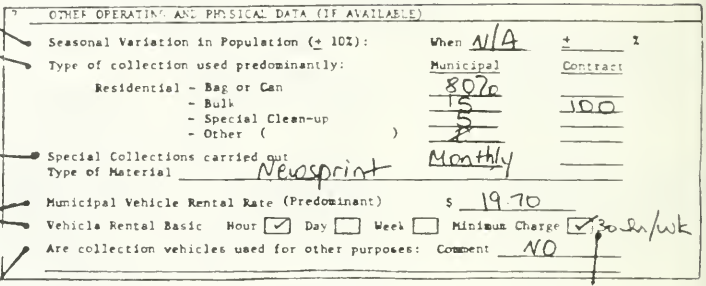
SAMPLE OF
INPUT COMPLETION INSTRUCTIONS
(COLLECTION DATA - IF AVAILABLE)

SOME MUNICIPALITIES MAY BE AFFECTED BY MAJOR (10%) INFLUXES OF SUMMER TOURISTS FOR EXAMPLE, THIS KIND OF CHANGE SHOULD BE RECORDED HERE

ENTER THE % OF THE PREDOMINANT TYPES OF COLLECTIONS. EG. 80% RESIDENTIAL BAG OR CAN COLLECTION IN THE EXAMPLE

IN THIS EXAMPLE, THERE ARE SPECIAL MONTHLY COLLECTIONS OF NEWSPRINT

THE RENTAL RATE CHARGED BY THE CENTRAL MAINTENANCE GARAGE, MAY COVER REPAIRS AND MAINTENANCE COSTS FOR THE REPLACEMENT OF VEHICLES



7 OTHER OPERATING AND PHYSICAL DATA (IF AVAILABLE)

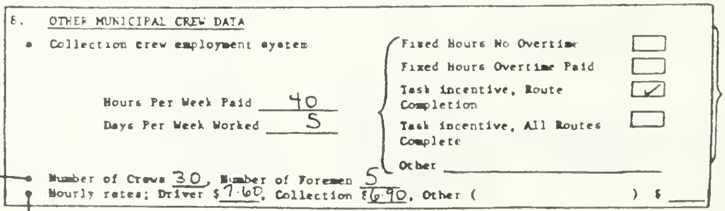
- Seasonal Variation in Population (± 10%): When N/A ± %
- Type of collection used predominantly:

	Municipal	Contract
Residential - Bag or Can	80%	
- Bulk	15	100
- Special Clean-up	5	
- Other ( )	2	

- Special Collections carried out Monthly
  Type of Material Newsprint
- Municipal Vehicle Rental Rate (Predominant) $ 19.70
- Vehicle Rental Basic Hour ☑ Day ☐ Week ☐ Minimum Charge ☑ 30 hr/wk
- Are collection vehicles used for other purposes: Comment NO

ON OCCASSION IN SOME MUNICIPALITIES VEHICLES MAY BE USED BY OTHER DEPARTMENTS AT TIMES. EG. PUBLIC WORKS DEPARTMENT

IN THIS EXAMPLE, THERE IS A MINIMUM CHARGE OF 30 HOURS PER WEEK AT $19.70 PER HOUR FOR EACH COLLECTION VEHICLE



8. OTHER MUNICIPAL CREW DATA

- Collection crew employment system
  - Fixed Hours No Overtime ☐
  - Fixed Hours Overtime Paid ☐
  - Task incentive, Route Completion ☑
  - Task incentive, All Routes Complete ☐
  - Other

  Hours Per Week Paid 40
  Days Per Week Worked 5
- Number of Crews 30, Number of Foremen 5
- Hourly rates; Driver $7.60, Collection $6.90, Other ( ) $

AS PER THE AGREEMENT IN PLACE WITH THE CREWS

NORMALLY THE SAME AS THE NUMBER OF ACTIVE COLLECTION VEHICLES

PER THE COLLECTIVE AGREEMENT, OR AVERAGE FOR THE YEAR IF THERE IS A MID-YEAR CONTRACT CHANGE

Schedule of Appendices

1. Waste Management Consultation Session Report
2. Waste Reduction, Reuse, Recycling and Recovery Report
3. Perpetual Care Program Report
4. Interim Guideline for the Interpretation of the Hazardous Waste Definition (Regulation 309)
5. Legislative Implications of the Blueprint for Waste Management
6. Proposed Revisions to Regulation 309
7. Proposed Revisions to Regulation 313
8. Proposed Generator Regulation
9. Terms of Reference for a Waste Management Master Plan
10. Solid Waste Management Cost Accounting Summary Report
11. Proposed Regulation Under the Environmental Assessment Act Regarding Private Waste Disposal Sites